SE (CMPN) sem IV CG 16/6/2014

(CBGS)

QP Code : **NP-19874**

(3 Hours) [ Total Marks : 80

N. B. : (1) Question No. **1** is **compulsory**.
(2) Solve any **three** questions from the remaining.
(3) Assume any suitable data.

1. (a) Explain Bresenhams line drawing algorithm. Plot a line by using Bresenhams line generating algorithm from (1,1) to (5,3) **10**
(b) Define window, view port and derive window to view port transformation **10**

2. (a) Explain parallel and perspective projections and derive the matrix for perspective projection. **10**
(b) Specify mid point circle algorithm. Using the same, plot the circle whose radius is 10 units **10**

3. (a) Explain Gouraud and Phong shading along with their advantages and disadvantages **10**
(b) Explain scan line fill algorithm with an example **10**

4. (a) Explain Liang Barsky line clipping algorithm. Apply this algorithm to the line with coordinates (30,60) and (60,25) against the window
(X min, Y min) = (10,10) and (X max, Ymax) = (50,50) **10**
(b) Explain any one polygon clipping algorithm **10**

5. (a) Derive the matrix for 2D rotation about an arbitrary point. **10**
(b) Explain Bezier curve and also specify the properties of Bezier curve. **10**

6. Write a short note on any **two** :- **20**
(a) Half tonning and dithering techniques
(b) Raster techniques
(c) Describe the following 3-D representation methods:–
(i) Sweep representation
(ii) B-REP
(iii) CSG.